Finisar

PRELIMINARY Product Specification

RoHS-6 Compliant
Laserwire™ QSFP+ Adapter
FTLX00Q1D4BNL

PRODUCT FEATURES

- Hot-pluggable QSFP+ footprint
- Supports Laserwire™ data rates of 9.95 Gb/s to 10.3 Gb/s on one lane
- RoHS-6 compliant (lead-free)
- Extended temperature range -5°C to 85°C
- Single 3.3V power supply
- Customizable EEPROM

Preliminary Photo

APPLICATIONS

- Adapts Laserwire™ plug for QSFP+ ports

Finisar's FTLX00Q1D4BNL 10Gb/s Laserwire™ QSFP+ Adapters are designed for use in conjunction with Finisar's Laserwire cable (Part Number: FCBP110LD1Lxx). The FTLX00Q1D4BNL QSFP+ Adapter allows a Laserwire cable to be plugged into a QSFP+ port and uses only one of the four lanes to transmit and receive data. The QSFP+ Adapter incorporates a customizable EEPROM. The Adapter is RoHS compliant and lead free per Directive 2002/95/EC[1], and Finisar Application Note AN-2038[2].

PRODUCT SELECTION

FTLX00Q1D4BNL

I. Background

Figure 1 illustrates the application of the FTLX00Q1D4BNL QSFP+ Adapter. Pin descriptions for the FTLX00Q1D4BNL interface to the host board are shown in Section II. Please refer to the FCBP110LD1Lxx Laserwire datasheet for details of the interface between the FTLX00Q1D4BNL QSFP+ Adapter and the Laserwire cable. The Laserwire connector pin-out is also shown in Section II for reference.

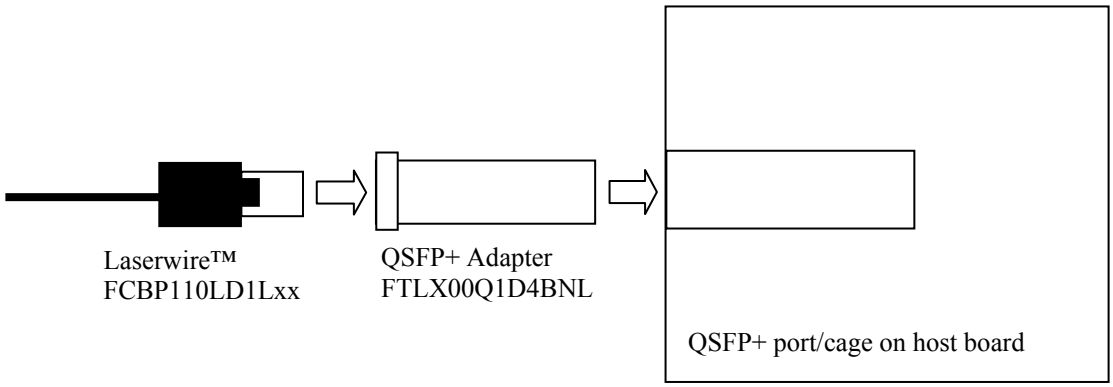


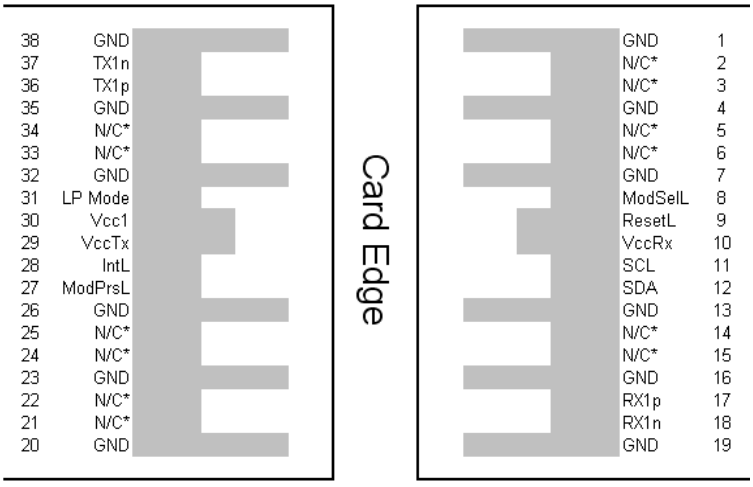
Figure 1. (Top View) From left to right: Laserwire, QSFP+ Adapter, QSFP+ cage on host board.

Insertion sequence: (1) QSFP+ Adapter is plugged into QSFP+ port; (2) Laserwire is plugged into Adapter.

Extraction sequence: (1) Depress tab on top of Laserwire plug and extract cable from Adapter; (2) Pull on Adapter bail release lever and extract Adapter from host port.

Note: Only one of the four lanes in the QSFP+ adapter is transmitting and receiving data.

II. Pin Descriptions



* 100Ω termination in adapter

Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	n/c	Internally Terminated in Adapter	2
3	n/c	Internally Terminated in Adapter	2
4	GND	Ground	1
5	n/c	Internally Terminated in Adapter	2
6	n/c	Internally Terminated in Adapter	2
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3 V Power supply receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	n/c	Internally Terminated in Adapter	2
15	n/c	Internally Terminated in Adapter	2
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	n/c	Internally Terminated in Adapter	2
22	n/c	Internally Terminated in Adapter	2
23	GND	Ground	1
24	n/c	Internally Terminated in Adapter	2
25	n/c	Internally Terminated in Adapter	2
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3 V Power supply transmitter	
30	Vcc1	+3.3 V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	n/c	Internally Terminated in Adapter	2
34	n/c	Internally Terminated in Adapter	2
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Notes
1. Circuit ground is internally isolated from chassis ground.
2. 100Ω termination in adapter

III. Absolute Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	T_S	-40		85	°C	
Relative Humidity	RH	0		85	%	1

I. Non-condensing.

IV. Electrical Characteristics (T_{OP} = -5 to 85°C, V_{CC} = 3.14 to 3.46 Volts)

Electrical characteristics assume a Laserwire cable is inserted into the Adapter port.

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc	3.14		3.46	V	
Supply Current	Icc		150	200	mA	
Transmitter (to Laserwire)						
Differential data input swing	Vin,pp	180		800	mV	1
Receiver (from Laserwire)						
Differential data output swing	Vout,pp	450	700	850	mV	2
Power Supply Ripple Tolerance	PSR	33			mVpp	3

Notes:
1. DC coupled internally. See Figure 2 for input eye mask requirements. Self-biasing 100Ω differential input.
2. DC Coupled with 100Ω differential output impedance. See Figure 3 of Laserwire (P/N FCBP110LD1Lxx) Datasheet for output eye mask.
3. All transceiver specifications are guaranteed with the given power supply sinusoidal modulation up to specified amplitude over a range of 10 Hz to 10 MHz applied through the power supply filtering network shown in Figure 6. See SFF-8431 Rev 4.1 (SFP+) specification section D.17.3 Power Supply Tolerance Testing for the test methodology but with the module replaced by a 15Ω load for amplitude calibration.

V. Environmental Specifications

The FTLX0071D4BNL QSFP+ Adapter has an operating temperature range from -5°C to +85°C case temperature. Note that the Laserwire™ cable has an operating temperature range of 0°C to +60°C.

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Case Operating Temperature	T_{op}	-5		85	°C	
Storage Temperature	T_{sto}	-40		85	°C	

VI. Regulatory Compliance

Feature	Agency	Standard	Certificate #
Electrical Safety	TÜV	EN 60950	TBD
Electrical Safety	UL/CSA	CLASS 3862.07 CLASS 3862.87	TBD

Copies of the referenced certificates are available at Finisar Corporation upon request.

VII. Mechanical Specifications

Finisar's Laserwire QSFP+ Adapters are compatible with the dimensions defined by the QSFP+ Mechanical Specifications in INF-8077i[3], with the exception of the port design to accommodate the Laserwire plug. The label is on the bottom of the module.

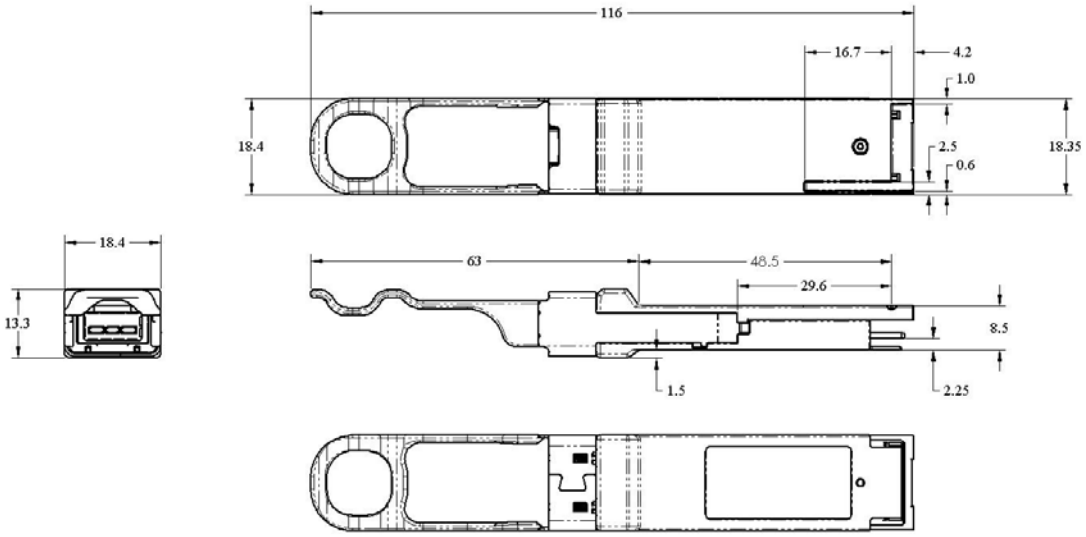


Figure 2. FTLX00Q1D4BNL Mechanical Dimensions.

VIII. EEPROM Table (Address A0h)

Refer to Finisar Application Note AN-2075-Quadwire™ EEPROM Mapping-RevA

IX. References

1. Directive 2002/95/EC of the European Council Parliament and of the Council, "on the restriction of the use of certain hazardous substances in electrical and electronic equipment". January 27, 2003.

2. "Application Note AN-2038: Finisar Implementation Of RoHS Compliant Transceivers", Finisar Corporation, January 21, 2005.

3. "Specifications for Enhanced 8.5 and 10 Gigabit Small Form Factor Pluggable Module 'SFP+ '", SFF Document Number SFF-8431, Revision 4.1, July 6, 2009.

4. "Application Note AN-2075-Quadwire™ EEPROM Mapping-RevA", Finisar Corporation, September 1, 2009.

X. For More Information

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